

8. FIRE DETECTION AND SUPPRESSION

When all prevention efforts and activities fail, fires occur. The task at hand then becomes that of keeping the losses to a minimum. Responsibility for this rests jointly with the railroad companies and the fire protection agencies. It involves quick detection and reporting of fire starts followed by fast and effective suppression activity.

Fire protection agencies have detection systems including fixed lookouts and aerial patrols. They also rely on citizen reports. Unfortunately, many portions of railroad right-of-way are hidden from lookouts and from most citizens. This usually means fires on them will not be detected until large enough to put up high smoke columns. Aerial detection is not constant in any one area. Therefore, it is important that the companies augment the fire detection system. This can be, and commonly is, done in several ways. Detection can actually start before a wildfire, i.e., through observation and reporting of sparking exhausts or brake shoes.



Photograph 8-1.
Shoefly

One source of fire reports is train crews. These may be on the train starting the fire or any member of the crew of a following train or a passing train. Another source might be section gangs or other work crews. In most companies, all these personnel are under orders to observe and report by radio or telephone any abnormal occurrence related to rolling stock. It then remains for the company dispatchers or agents to relay the information to the fire dispatchers.

In some cases, the fire dispatchers will have already intercepted the message on their scanner radio monitors. Another source of company fire detection reports is hyrailer patrols. These may be timed to follow 10-15 minutes behind trains. They may only be activated during fire season and usually only during daylight hours. They may have a one or two-person crew which is provided with a radio and limited firefighting tools. Unless they discover a fire while it is still very small they will

usually need help in suppressing it. Such patrols are quite costly, and they are, therefore, seldom put behind every train during an entire 6-8 month fire season. Some companies activate them based on “very high” and “extreme” ratings or specified burning indexes of the National Fire Danger Rating system obtained from the protection agencies. Other companies activate the patrols only on Red Flag Alert or Warning also obtained from the protection agencies. A few automatically patrol behind every train during fire season.

When fires do occur on railroad property or R/W, the company has a legal responsibility to report them to the protection agency and to do all in its power to suppress the fire. If the fire involves rolling stock, the company also has the duty to inform firefighters regarding the nature of the cargo involved in or exposed to the fire. The most positive source of this information is the conductor’s bills of lading.

Certain firefighting equipment is required, and normally present, on railroad equipment and work locations. Each locomotive is equipped with a dry powder fire extinguisher mounted in the cab or in the engine compartment. Since any fire in a diesel electric locomotive will involve either petroleum products or electricity or both, firefighters should not apply water. Section, track, bridge and other work crews are required to have, in addition to their regular work tools, firefighting tools and equipment. These must be readily available at the work site and reserved solely for firefighting purposes.



Photograph 8-2.
Fire Box – Firefighting Tools

Company-owned bulldozers and in certain areas motor graders are excellent wildland firefighting machines. The companies should always make them available to work under the supervision of the agency incident commander on any fire near the railroad.

Several railroad companies provide water tank cars exclusively for fire protection purposes during

fire season. These large water sources (8,000-12,000 gallons each) can be of great help to fire suppression forces. To be fully effective, they must be capable of being moved to the scene of a fire quickly and left there, or nearby, as long as needed. This often presents some problems. It may not be economically practical to have a locomotive and crew on standby where the cars are parked.

Also R/W fires seldom occur at sidings, thus a tank car at the fire will usually tie up a mainline track. In spite of these problems, such tank cars have proven of great value to firefighters many times. It is important for fire agency personnel to check firefighting water tank cars at the beginning of each fire season to see that they are equipped with pumps, fire hose (minimum 200 feet) and nozzles. The outlets should also be checked for size and threads compatible with fire agency equipment. If found not compatible, suitable adapters should be provided on the cars.

One company has developed a unique water car that attaches to the rear of each train operated during fire season. This car is equipped with spray nozzles that can sprinkle the entire R/W for approximately 20 feet each side of centerline. The nozzles can be activated either by the brake pipe reduction, which applies the train air brakes, or manually by the conductor. Effectiveness of fire detection and suppression is largely dependent on adequate communications. Between railroad companies and fire agencies, these are normally accomplished by commercial telephone. Many fire agencies augment telephone communications by including railroad frequencies on the radio scanning monitors. These frequencies are used to keep in touch with neighboring fire and police agencies.



**Photograph 8-3.
Water Car with Spray Bars**



**Photograph 8-4.
Water Car Spraying Water**



**Photograph 8-5.
Spray Bars**

If the railroads were to install radio monitors on fire frequencies at certain locations and in the vehicles of certain supervisors (e.g., division engineers, trainmasters, and roadmasters), the cross monitoring would allow direct radio communications during emergencies.

Each company or agency employee would talk on their frequency and listen on the other. This would result in a considerable increase in efficiency as long as proper radio traffic discipline was observed. Railroad companies, in addition to radio, cell phones and commercial telephone, may have private phone systems for internal communications. Often these can be patched in to commercial telephones allowing fire dispatchers to talk to various company employees with one call and the use of several extensions.